L 23028-66
ACC NR: AP6009660

visible regions using diffraction spectrographs (DFS-8 and DFS-12) and a double prism monochromator (DMR-4). The measurements were made at 4.2, 20.4 -- 60, 77, and 295K. The observed absorption bands are identified with transitions inside the 3d electron shell of the Co^{2+} ion in a cubic crystalline field. It is shown that near 35K one of the absorption lines is strongly shifted, owing to the transition of the $NaCoF_2$ into a magnetically-ordered state. It is observed that at low temperatures the state $^2E(^2H)$ splits into two lines ($\Delta\nu = 36$ cm^{-1}), one of which disappears when the temperature is raised to 60K. The possibility that this splitting is due to exchange interaction between the paramagnetic ions is discussed, although the data obtained so far do not prove this completely. The authors thank G. A. Smolenskiy for interest in the work and a discussion of the results, V. V. Yeremenko for a discussion of the results, and E. V. Matyushkin for help with the measurements. Orig. art. has: 4 figures, 2 formulas and 1 table.

SUB CODE: 20/ SUBM DATE: 24Jul65/ ORIG REF: 002/ OTH REF: 005

Card 2/2

L 23028-66 EWT(l)/EWT(m)/T IJP(c) JD/HW

ACC NR: AP6009660 SOURCE CODE: UR/0181/66/008/003/0783/0787

AUTHORS: Pisarev, R. V.; Belyayeva, A. I.; Syrnikov, P. P.

ORG: Institute of Semiconductors, AN SSSR, Leningrad (Institut poluprovodnikov AN SSSR)

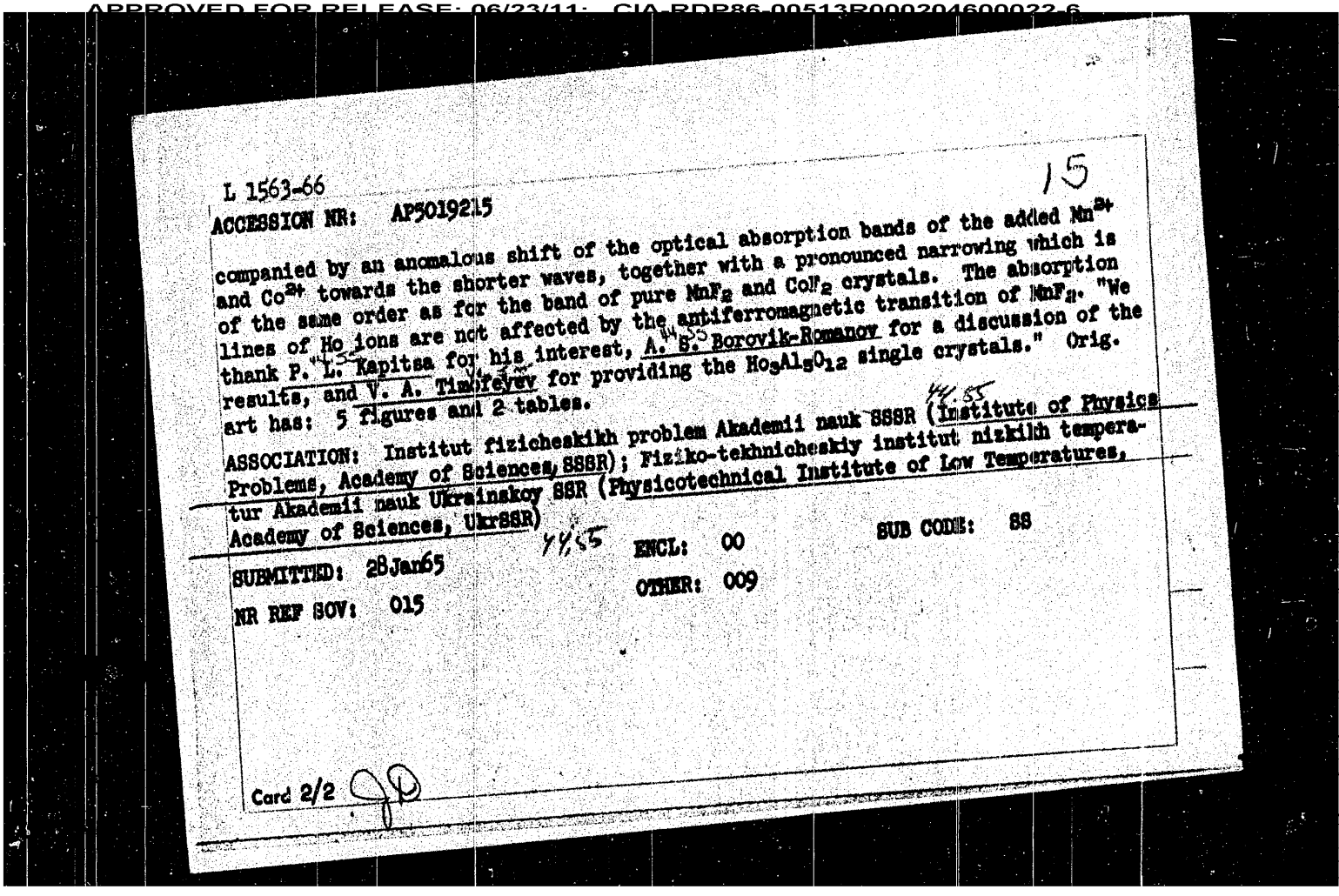
TITLE: Structure of energy levels and exchange interaction of Co^{2+} ions in $NaCoF_3$

SOURCE: Fizika tverdogo tela, v. 8, no. 3, 1966, 783-787

TOPIC TAGS: energy band structure, cobalt compound, single crystal, light absorption, optic transition, line shift

ABSTRACT: The authors investigated the spectrum of optical absorption of $NaCoF_3$ in the interval from 5,000 to 30,000 cm^{-1} (2 -- 0.33 μ). The single crystals were obtained by chemical reaction of NaCl with CoF_2. The experiments were made in tightly sealed platinum crucibles. The absorption spectra were investigated in the ultraviolet and

Card 1/2



L 1563-66 15

ACCESSION NR: AP5019215

companied by an anomalous shift of the optical absorption bands of the added Mn^{2+} and Co^{2+} towards the shorter waves, together with a pronounced narrowing which is of the same order as for the band of pure MnF_2 and CoF_2 crystals. The absorption lines of Ho ions are not affected by the antiferromagnetic transition of MnF_2. "We thank P. L. Kapitsa for his interest, A. S. Borovik-Romanov for a discussion of the results, and V. A. Timofeyev for providing the $Ho_3Al_5O_{12}$ single crystals." Orig. art has: 5 figures and 2 tables.

ASSOCIATION: Institut fizicheskikh problem Akademii nauk SSSR (Institute of Physical Problems, Academy of Sciences, SSSR); Fiziko-tekhnicheskiy institut nizkikh temperatur Akademii nauk Ukrainskoy SSR (Physicotechnical Institute of Low Temperatures, Academy of Sciences, UkrSSR)

SUBMITTED: 28Jan65 ENCL: 00 SUB CODE: SS

NR REF SOV: 015 OTHER: 009

Card 2/2

L 1563-66 EWT(l)/EWT(m)/T/EWP(t)/EWP(b)/EWA(c) IJP(c) JD/JG

ACCESSION NR: AP5019215 UR/0056/65/049/001/0047/0053

AUTHOR: Belyayeva, A. I.; Yeremenko, V. V.; Mikhaylov, N. N.; Petrov, S. V.

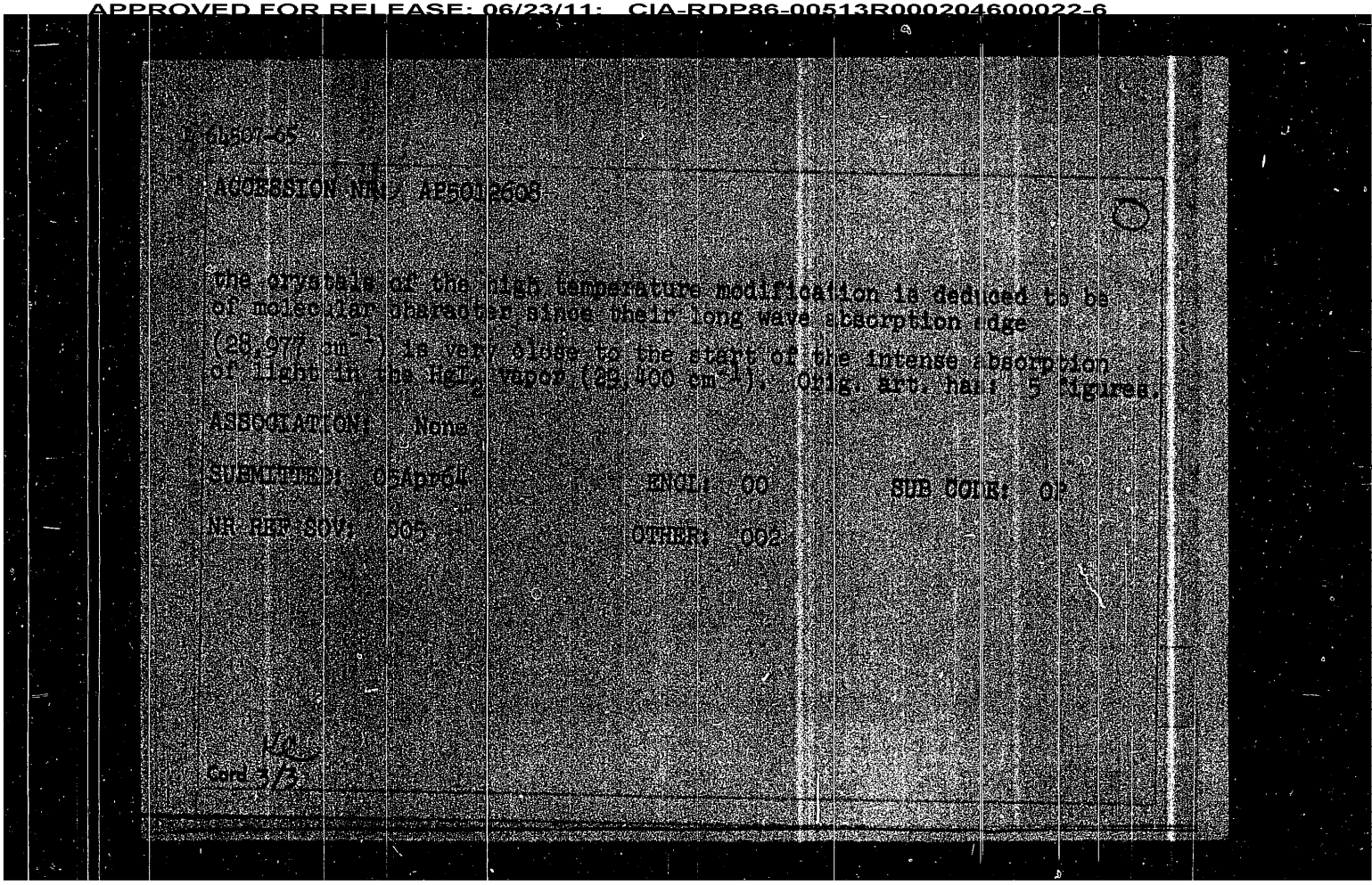
TITLE: Light absorption spectra for Mn^{2+}, Co^{2+}, Ni^{2+}, and Ho^{3+} ions in antiferromagnetic fluoride crystals

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 49, no. 1, 1965, 47-53

TOPIC TAGS: manganese alloy, holmium, transition element, light absorption, absorption spectrum, antiferromagnetic material

ABSTRACT: This is claimed to be the first attempt to alloy MnF_2 single crystals with holmium, and also to grow fluorides containg two different transition metal ions, Mn^{2+} and Co^{2+} or Mn^{2+} and Ni^{2+}. The absorption spectra of these crystals were investigated from 4.2 to 100K, and their characteristics near the magnetic ordering temperature of the solvent crystal are discussed. The single crystals of the pure transition-metal fluorides were obtained by a procedure described elsewhere (Kristallografiya, in press). Some of the difficulties and special techniques involved in the growing of mixed single crystals are discussed. An analysis of the optical absorption spectra indicates that the added ions enter the MnF_2 lattice. The results also show that the antiferromagnetic transition of the solvent crystal is ac-

Card 1/2



L 61507-65

ACCESSION NR: AP5012608

the crystals of the high temperature modification is deduced to be of molecular character since their long wave absorption edge (28,977 cm^{-1}) is very close to the start of the intense absorption of light in the HgI_2 vapor (29,400 cm^{-1}). Orig. art. has: 5 figures.

ASSOCIATION: None

SUBMITTED: 05Apr64 ENCL: 00 SUB CODE: OP

NR REF SOV: 005 OTHER: 002

Card 3/3

L 61507-65

ACCESSION NR: AP5012608

tigating the influence of impurities on the structure of the spectra of red HgI_2 and comparing the spectra of the yellow high-temperature modification with the spectra of the vapor. The light source was a high power discharge lamp with an intense continuous spectrum. The spectra were photographed with prism spectrographs. The crystals were grown by cooling a drop of melt in a special quartz cuvette which yielded samples of specified thickness. The tests show that the electron transitions causing the long-wave absorption in the crystals of the low temperature red modification of HgI_2 are not localized within a single cell. This is evidenced by the absence of any similarity with the optical absorption spectrum of HgI_2 vapor and the sharp influence of the phase transition (at 123C) on the spectrum. The weak broadening of the absorption band following introduction of impurities CdI_2 apparently signifies that the radius of the corresponding excited state is sufficiently large to average out the inhomogeneity of the structure. The absorption of light in

Card 2/3

L 61507-65 [illegible] IJP(c) GG/JD/[illegible]
ACCESSION NR: AP5012608 UR/0051/65/018/005/0820/0824
535.34:548.0

AUTHORS: Yeremenko, V. V.; Belyayeva, A. I.; Marisova, S. V.

TITLE: On the nature of the structure of the long-wave absorption edge of light in crystals of mercury iodide

SOURCE: Optika i spektroskopiya, v. 18, no. 5, 1965, 820-824

TOPIC TAGS: mercury compound, manganese compound, absorption edge, light absorption, absorption spectrum

ABSTRACT: The authors investigated the absorption spectra of light in the crystals HgI_2 and $MnCl_2$, and in the solid solutions $HgI_2(X)$-$CdI_2(1 - X)$ and $MnCl_2(X)$-$CdCl_2(1 - X)$ at 20.4K. The purpose of the investigation was to obtain more details on the mechanism of photoconductivity and luminescence of the HgI_2 crystals, and especially to clarify the mechanisms of long-wave absorption of HgI_2 by inves-

YEREMENKO, V.V.; BELYAYEVA, A.I.

Characteristics of the spectrum of absorption of light by manganese carbonate crystals near the Neel point. Fiz. tver. tela 6 no.7:1967-1974 Jl '64. (MIRA 17:10)

1. Fiziko-tekhnicheskiy institut nizkikh temperatur AN UkrSSR, Khar'kov.

YEREMENKO, V.V.; BELYAYEVA, A.I.

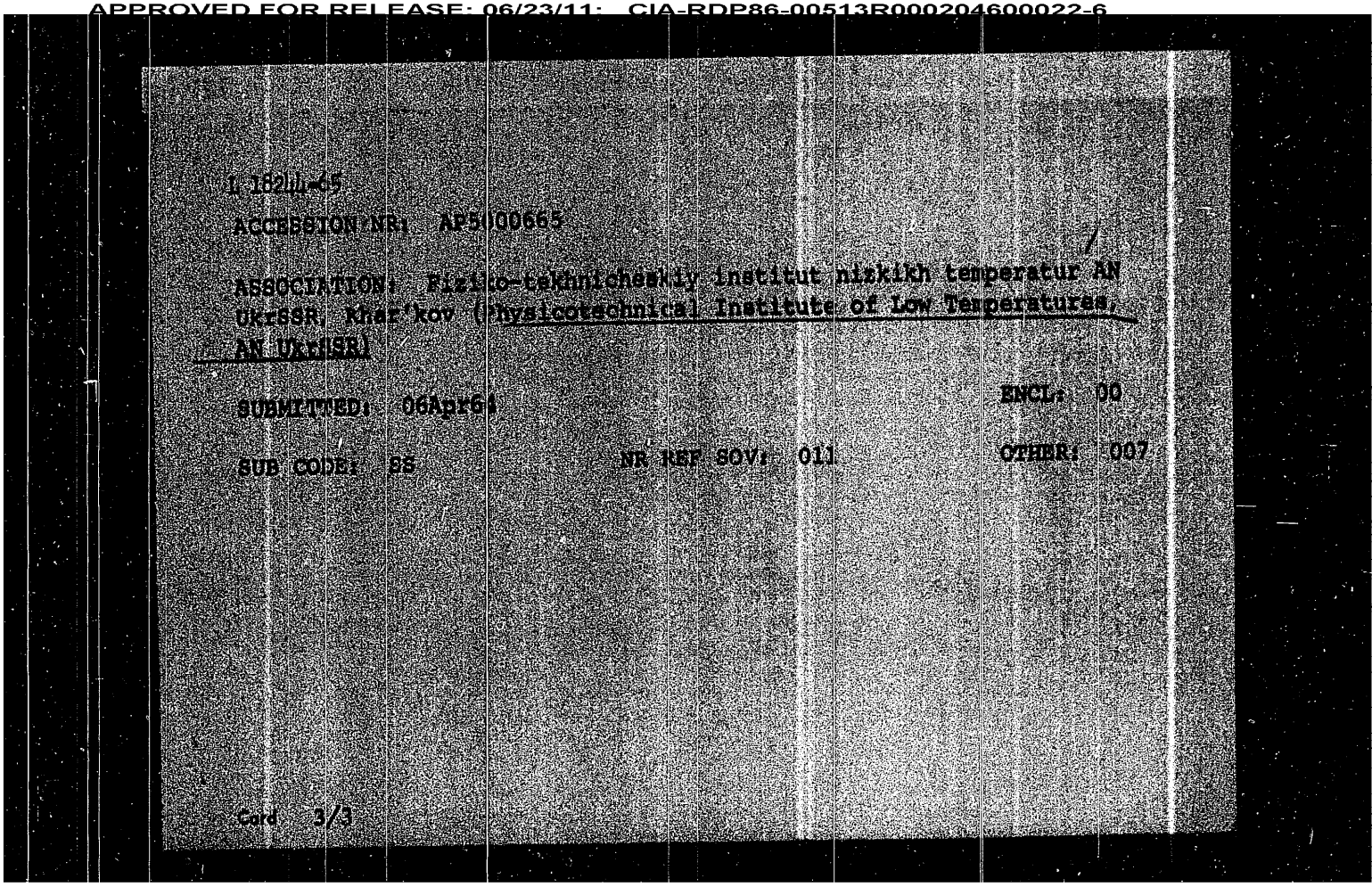
Optical absorption spectra of crystals of antiferromagnetic cobalt compounds. Fiz. tver. tela 6 no.12:3646-3652 D '64
(MIRA 18:2)

1. Fiziko-tekhnicheskiy institut nizkikh temperatur AN UkrSSR, Khar'kov.

BELYAYEVA, A.I.; YEREMENKO, V.V.

Effect of antiferromagnetic ordering on the spectrum of light absorption by manganese carbonate crystals. Zhur. eksp. i teor. fiz. 46 no.2:488-491 F '64. (MIRA 17:9)

1. Fiziko-tekhnicheskiy institut nizkikh temperatur AN UkrSSR.



L 18211-65

ACCESSION NR: AP5000665

ASSOCIATION: Fiziko-tekhnicheskiy institut nizkikh temperatur AN UkrSSR, Khar'kov (Physicotechnical Institute of Low Temperatures, AN UkrSSR)

SUBMITTED: 06Apr64 ENCL: 00

SUB CODE: GS NR REF SOV: 011 OTHER: 007

Card 3/3

hydrogen fluoride. The $CoCO_3$ were grown by the hydrothermal method at the Institut kristalografii AN SSSR. Samples in the form of small plates were cut from both types of crystals. The authors identified the absorption bands due to the transitions in the unfilled 3d shell of the Co^{2+} ion in a cubic intracrystalline field. Details of the structure of the spectra and polarization effects are described. The influence of antiferromagnetic ordering on the spectrum is discussed. It is shown that antiferromagnetic ordering will not cause a radical shift of the absorption bands for the spin-conserving transition (B-band in $CoCO_3$) only if the exchange integral in the excited state differs little from that of the ground state.

The authors thank N. N. Mikhaylov, S. V. Petrov, and N. Yu. Iskornikova for supplying the CoF_2 and $CoCO_3$ single crystals, and corresponding member of AN UkrSSR B. I. Verkin and Professor A. S. Borovik-Romanov for continuous interest in the work. Orig. art. has: 8 figures.

L 18244-65 EWT(l)/EPF(a)-2 Pt-10 IJP(c)/BSD/ASD(a)-5/AFETR/AS(mp)-2/ AFGC(b)/SSD/AFWL/RAEM(a)/SSD(c)/RAEM(j)/ESD(gs)/ESD(t) GG

ACCESSION NR: AP5000665 S/0181/64/006/012/3646/3652

AUTHORS: Yeremenko, V. V.; Belyayeva, A. I.

TITLE: Optical absorption spectra of crystals of antiferromagnetic cobalt compounds

SOURCE: Fizika tverdogo tela, v. 6, no. 12, 1964, 3646-3652

TOPIC TAGS: cobalt compound, optical absorption, absorption spectrum, single crystal, antiferromagnetism, polarization, ordered structure

ABSTRACT: The absorption spectra of single crystals of CoF_2 and $CoCO_3$ were investigated in the spectral range from 5500 to 3000 Å at temperatures from room temperature down to 4.2K. The procedure was analogous to that described earlier (FTT v. 5, 2877, 1963). The CoF_2 single crystals were grown at the Institut fizicheskikh problem AN SSSR from a melt in platinum crucibles in an atmosphere of

Card 1/3

ACCESSION NR: AP4041694

anomaly in the temperature dependence of the frequency shift is approximately the same for all observed absorption bands. The peculiarities of the spectrum due to the antiferromagnetic ordering are discussed. "The authors thank corr. member of AN UkrSSR B. I. Verkin and Professor A. S. Borovik-Romanov for continuous help and support." Orig. art. has: 8 figures and 1 table, and 1 formula.

ASSOCIATION: Fiziko-tekhnicheskiy institut nizkikh temperatur AN UkrSSR, Khar'kov (Physicotechnical Institute of Low Temperatures, AN UkrSSR)

SUBMITTED: 24Sep63 ENCL: 00

SUB CODE: EM, OP NR REF SOV: 007 OTHER: 011

Card 3/3

ACCESSION NR: AP4041694

Particular attention was paid to the frequency shift, and to the shape and intensity of the bands as the $MnCO_3$ crystal was cooled below the Neel temperature (29.4K). It was observed that all the investigated absorption bands connected with the optical transitions ${}^6S_{5/2}({}^6A_{1g}) \rightarrow [{}^4G\ {}^4E_g\ {}^4A_{1g}]$, $\rightarrow {}^4D({}^4T_{2g})$, $\rightarrow {}^4D({}^4E_g)$, and $\rightarrow {}^4P({}^4T_{1g})$ in the third shell of the Mn^{++} ion begin to shift rapidly to the short-wave region of the spectrum on approaching the Neel temperature. The value of the shift is close to the value of the Zeeman splitting of the ground state level ${}^6S_{5/2}({}^6A_{1g})$ in an exchange field $H_E \approx 3 \times 10^5$ Oe. The temperature dependence of the half-width of the observed bands is made complicated either by the doublet structure of the transitions, or by interaction with the phonons. In the case of the D and F bands, a noticeable change in the temperature dependence is observed near the Neel temperature, where the asymmetry of the bands also increases markedly. The

Card 2/3

ACCESSION NR: AP4041694 S/0181/64/006/007/1967/1974

AUTHORS: Yeremenko, V. V.; Belyayeva, A. I.

TITLE: Features of the spectrum of light absorption by manganese carbonate crystals near the Neel temperature

SOURCE: Fizika tverdogo tela, v. 6, no. 7, 1964, 1967-1974

TOPIC TAGS: manganese alloy, antiferromagnetism, optical spectrum, absorption band, frequency shift

ABSTRACT: Continuing an earlier effort (V. V. Yeremenko, A. I. Zvyagin, FTT v. 6, 1013) to clarify the factors that mask the influence of antiferromagnetic ordering on the optical spectrum, the authors investigated the absorption spectrum of $MnCO_3$ crystals, since these differ from all other antiferromagnetic crystals previously investigated both in their crystallographic and their magnetic structures. The tests were made at 7000--2500 Å and 400--4.2K.

Card 1/3

ACCESSION NR: AP4019210

romagnetic structures. The absorption spectra were obtained at temperatures from 4 to 300K, the absorption intensity being measured by photographic photometry. The optical absorption spectrum of $MnCo_3$ crystals was found to be very similar to that of MnF_2 crystals, with narrow bands observed due to the transitions $^6S_{5/2} \rightarrow {}^4G_{3/2}$, $^4D_{3/2}$ and $^4P_{3/2}$ in the Mn^{2+} ion. All the observed MnF_2 bands are shifted by approximately the same amount towards the ultraviolet relative to the corresponding $MnCo_3$ bands. The frequency shift of all the optical bands increases on approaching the Neel point. The $^6S_{5/2} \rightarrow {}^4D_{3/2}$ band narrowed down appreciably on cooling below the Neel temperature (29.4K), thus indicating that the observed antiferromagnetic ordering is a universal effect. The lack of anomaly in the temperature dependence of the bandwidths of the other transitions might have been due to a complex structure, which could not be

Card 2/4

ACCESSION NR: AP4019210 S/0056/64/046/002/0488/0491

AUTHORS: Belyayeva, A. I.; Yeremenko, V. V.

TITLE: Effect of antiferromagnetic ordering on the optical absorption spectrum in manganese carbonate crystals

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 488-491

TOPIC TAGS: magnesium carbonate, magnesium carbonate crystal, light absorption spectrum, antiferromagnetic ordering, optical absorption spectrum, antiferromagnetic ordering, optical absorption spectrum, Neel temperature, manganese fluoride, exchange interaction, optical band broadening, temperature frequency shift

ABSTRACT: To check on the universality of the influence of antiferromagnetic ordering previously discovered by the authors (ZhETF 44, 469, 1963), similar investigations were carried out on the absorption spectra of $MnCo_3$, which has different crystalline and fer-

Card 1/2

BELYAYEVA, A.I.; YEREMENKO, V.V.

Temperature dependence of the width of the optical absorption bands in MnF_2 crystals. Zhur. eksp. i teor. fiz. 44 no.2:469-471 F '63. (MIRA 16:7)

1. Fiziko-tekhnicheskiy institut nizkikh temperatur AN UkrSSR.

EREMENKO, V.V.; BELYAYEVA, A.I.

Characteristics of the absorption spectrum of manganese fluoride crystals. Fiz. tver. tela 5 no.10:2877-2884 O '63. (MIRA 16:11)

1. Fiziko-tekhnicheskiy institut nizkikh temperatur AN UkrSSR, Khar'kov.

Separation of Uranium and Vanadium

SOV/75-13-5-11/24

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova (Leningrad State University imeni A. A. Zhdanov)

SUBMITTED: July 1, 1957

Card 4/4

the solutions in which they are formed, their ammonium salts were isolated for the investigation of the solubility. It was found that the uranovanadic acids precipitate at pH 2,2-6,5. In this pH-range the composition of the precipitate does not depend on the H^+-ion concentration. It was seen that the formation of the ammonium uranyl trimetavanadate proceeds very slowly. With uranium concentrations of 5.10^{-4} g-atom/l and a threefold excess of vanadium this process is terminated at room temperature only after 3 months. Heating the solutions up to boiling this increases the formation velocity of the uranyl trimetavanadate to a considerable degree. The solubilities of $NH_4[UO_2(OH)_2VO_3]$, $NH_4[UO_2(OH)(VO_3)_2] \cdot 1,5\ H_2O$ and $NH_4[UO_2(VO_3)_3] \cdot 3,5\ H_2O$ were determined and are given. They are within the magnitude of the solubility of the silverhalogenides. Conditions are given under which the best separation of U(VI) and V(V) is to be expected.

There are 8 tables and 6 references, 5 of which are Soviet.

change of the concentration ratio U:V in the solution. In order to attain a complete formation of the complex anion the precipitates were analyzed not before 24 hours after the combination. Since it is possible to synthesize compounds with a small ratio U:V whereat the share of vanadium is not an integer it can be concluded that one by one all OH-groups in the complex are substituted by metavanadate-anions VO_3^-. In dependence on the ratio U:V in the initial solution the precipitate is formed from one of the three following complex anions: Uranyl trimetavanadate $\left[UO_2(VO_3)_3\right]^-$; uranyl hydroxodimetavanadate $\left[UO_2(OH)(VO_3)_2\right]^-$; uranyl dihydroxometavanadate $\left[UO_2(OH)_2VO_3\right]^-$. This assumption is in good accord with the composition of the natural uranovanadates. It is important when searching methods for the separation of uranium and vanadium to know the values for the solubility of these uranovanadates and the limits of the pH-values within which they remain stable. The present paper deals with these questions. Since it is practically impossible to separate the free complex acids from

SOV/75-13-5-11/24

AUTHORS: Morachevskiy, Yu. V., Belyayeva, A. I., Ivanova, L. V.

TITLE: Separation of Uranium and Vanadium (K voprosu o razdelenii urana i vanadiya)

PERIODICAL: Zhurnal analiticheskoy khimii, 1958, Vol 13, Nr 5, pp 570-575 (USSR)

ABSTRACT: For the separation of uranium and vanadium various methods are known (Refs 1-4). Many of them, however, give but an incomplete separation; especially in nearly neutral solutions the separation does not proceed completely. This fact leads to the conclusion that uranium and vanadium react with one another under these conditions. This conception is confirmed by the existence of uranovanadates in natural minerals and by the smoothly proceeding synthesis of uranovanadates in aqueous solutions. In a previous paper (Ref 5) the authors had proved that pentavalent vanadium forms with hexavalent uranium in aqueous solution the complex uranovanadate-anion. The corresponding acid is as well as its salts but little dissociated in water and precipitates already in concentrations of 5.10^{-5} g-ion/l. The composition of this precipitate varies with the

Card 1/4

CHERNOKHVOSTOVA, Ye.V.; STARSHINOVA, V.S.; SMIRNOVA, M.A.; BELYAYEVA, A.I.

Conditions of the formation of typhoid antibodies of various physicochemical nature. Zhur.mikrobiol., epid. i immun. 42 no.2:13-19 F '65. (MIRA 18:5)

1. Moskovskiy institut epidemiologii i mikrobiologii, I Moskovskiy ordena Lenina meditsinskiy institut i Moskovskaya gorodskaya sanitarno-epidemiologicheskaya stantsiya.

BELYAYEVA, A. I. Editor

"Russian Scientists in Non-Ferrous Metallurgy," Moscow, 1950. 208 pages.

Evaluation B-82959

BELYAYEVA, A.I.; AVERINA, I.A.

Determination of pyridoxine by the microbiological method.
Lab.delo 7 no.7:22-23 Jl '61. (MIRA 14:6)

1. Kafedra propedevticheskoy terapii I Moskovskogo ordena Lenina meditsinskogo instituta imeni I.M.Sechenova.
(PYRIDOXINE)

Country : USSR
Category : Microbiology. Antibiosis and Symbiosis. Antibiotics.

Abs. Jour : Ref Zhur-Biol., No 23, 1958, No 105735

Author : Belyayeva A.I.
Institut. : --
Title : Rapid Method of Determination of Chlortetracycline Activity (By Way of Exchange of Experience)

Orig Pub. : Antibiotiki, 1957, 2, No 4, 35-37

Abstract : Supervision of the activity of chlortetracycline by the rapid method is accomplished in Petri dishes with two layers of agar: the lower layer consists of 2% agar on a phosphate buffer with a pH of 6.8-7.0; the upper one, of 1-1.2% agar, with 135 mg% of amine nitrogen (yeast digest à la Hottinger) and 1% glucose. The upper layer is seeded with 40-50 million bacillary spores of the mycoides type per cubic centimeter of nutrient agar. Incubation is carried out at 40° for the first hour, and then at 37° for three hours. This method shortens the time needed for determination of activity by 13 hours and produces only a slight (±5, ±10%) divergence from the generally-accepted biological method--S. P. Shapovalova.

Card: 1/1

BELYAYEVA, ~~A. I. L. K.~~
A. I.

TA 24/49T64

USSR/Medicine - Influenza, Prevention Sep 48
Medicine - Antibiotics

"Experimental Application of Antibiotics as a Prophylaxis Against Grippe," I. I. Yenkel, ~~L. K.~~ A. I. Belyayeva, M. L. Rubtsova, M. L. Turits, S. I. Eydel'shteyn, Inst Biol Prophylaxis of Infections, 1¼ pp

"Sov Med" No 9

Use of Lysozyme produced positive results. States that treatment must be started during initial stage of disease. Use of native streptomycin and erythrin under similar circumstances did not give satisfactory results.

[redacted]

24/49T64

AIEKSANDRIYSKIY, M.V.; BELYAYEVA, A.G.; MAKSIMOV, S.I.

Clinical statistical analysis of the treatment of fractures of the large tubular bones for five years. Trudy Vor. Med. inst. 52:227-231 '63.

Late results of a compound treatment of fresh fractures of the large tubular bones. Ibid.:233-236

(MIRA 18:3)

BELYAYEVA, A.G.

Experimental work in collective farm fields. Politekh. obuch. no.9:41-42 S '58. (MIRA 11:10)

1. Srednyaya shkola No.1 g.Lugi, Leningradskoy oblasti.
(Agriculture--Experimentation)

BELYAYEV, I.N.; BELYAYEVA, A.G.

Study of the system K_2TiO_3 - KCl - TiO_2. Zhur.prikl.khim. 38 no.6:1280-1284 Je '65. (MIRA 18:10)

BELYAYEV, I.N.; BELYAYEVA, A.G.

System Na_2TiO_3 - NaCl - TiO_2. Zhur. neorg. khim. 10 no.2:467-471 F '65. (MIRA 18:11)

1. Submitted July 18, 1963.

BELYAYEVA, A.A. (Obninsk, Kaluzhskoy oblasti, bul'var Entuziastov, d.15,kv.22)

Lipocalcinogranulomatosis. Ortop., travm. i protez. 25 no.3:74-77 Mr '64. (MIRA 18:3)

1. Iz otdeleniya kostnoy patologii (zav. - prof. V.Ya.Shlapoberskiy) TSentral'nogo instituta travmatologii i ortopedii (dir. - chlen-korrespondent AMN SSSR prof. M.V.Volkov).

BELYAYEVA, A. (g.Sumy)

Although there is no club... Sov. profsoiuzy 19 no.7:21-22 Ap '63.
(MIRA 16:4)

(Sumy—Electric industry workers)

BELYAYEVA, A., agronom po zashchite rasteniy.

Crucifer beetles and cabbage maggots. Zashch. rast. ot vred. i bol. 10 no.9:42 '65. (MIRA 18:11)

BELYAYEVA, A., agronom po zashchite rasteniy

Butterflies and moths as cabbage pests. Zashch. rast. ot vred. i bol. 10 no.12:40-41 '65. (MIRA 19:1)

LEZHANKINA, Z., kand.sel'skokhoz.nauk, starshiy nauchnyy sotrudnik
BELYAYEVA, A., agronom.

From experiments to high crop yields. NTO 3 no. 5:6-8 My '61.
(MIRA 14:5)

1. Nauchno-issledovatel'skiy institut ovoshchnogo khozyaystva (for Lezhankina). 2. Zamestitel' predsedatelya soveta pervichnoy organizatsii Nauchno-tekhnicheskogo obshchestva, sovkhoz imeni M.Gor'kogo Moskovskoy oblasti (for Belyayeva).
(Moscow Province--Vegetable gardening)

BELYAYEVA, A.

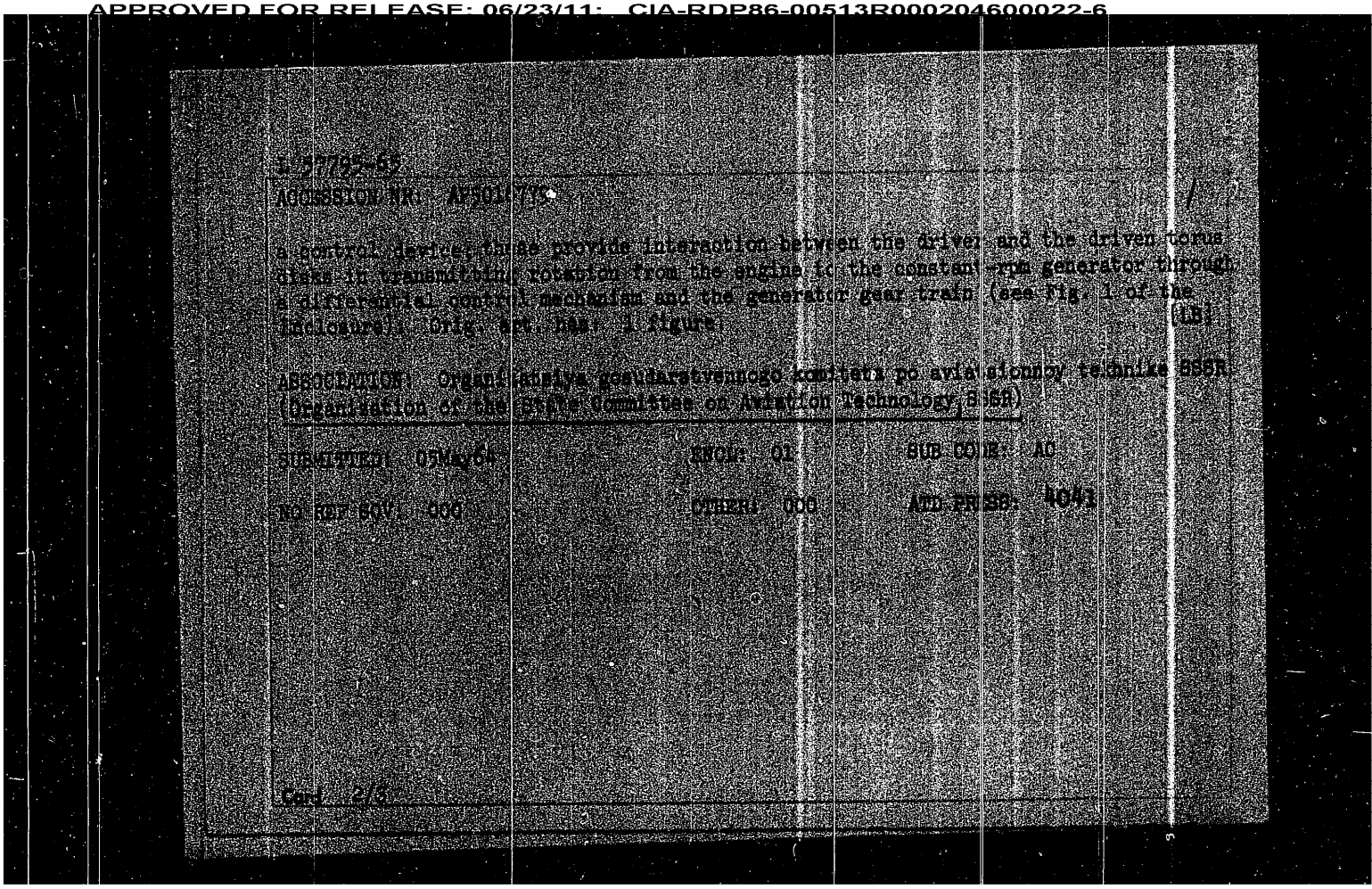
One year later. NTO no.1:25-27 Ja '59. (MIRA 12:2)

1. Predsedatel' soveta pervichnoy organizatsii nauchno-tekhnicheskogo obshchestva sel'skogo i lesnogo khozyaystva sovkhoza imeni M. Gor'kogo.
(Moscow Province--Agricultural research)

BELYAYEVA, A.

Fur trade of Kamchatka. Geog.v shkole 19 no.1:20-23 Ja-F '56.
(MLRA 9:5)

(Kamchatka--Fur trade)



L 27795-65
ACCESSION NR: AP5011715

a control device these provide interaction between the driver and the driven torus disks in transmitting rotation from the engine to the constant-rpm generator through a differential control mechanism and the generator gear train (see Fig. 1 of the Enclosure). Orig. art. has: 1 figure.

ASSOCIATION: Organ gosudarstvennogo komiteta po aviatsionnoy tekhnike SSSR (Organization of the State Committee on Aviation Technology, SSSR)

SUBMITTED: 07May64 ENCL: 01 SUB CODE: AC

NO REF SOV: 000 OTHER: 000 ATD PRESS: 4041

Card 2/3

L 57792-65 EPR/EPA(s)-2/EWA(h)/EWT(d)/EWP(l)/EWT(m)/EPA(bc)/
[illegible] Ps-4/Pt-7/Pz-5/Peb TT/AT

ACCESSION NR: AP5016779 UR/0286/65/000/010/0106/0106
621.83
629.13.01/06

AUTHOR: Abramovich, R. B.; Arinushkin, L. S.; Belyayev, Yu. V.; Gantman, A. M.; Golodovskiy, A. Ye.; [illegible], G. M.; Zhukov, Ye. P.; Mayzenberg, I. M.

TITLE: Aircraft turbodrive. Class 47, No. 171234

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 10, 1965, 106

TOPIC TAGS: aircraft turbodrive, constant rpm generator, torus drive, gear train

ABSTRACT: An Author Certificate has been issued for an aircraft turbodrive unit for the air-turbine starting of engines and for driving a constant-rpm a-c generator. The unit contains an air turbine, an a-c generator, a starter and generator gear train, and an unguided free-wheeling clutch. For increased economy and reliability, to decrease weight, and to shorten starting time, the unit is equipped with a twin torus drive in the form of two driver torus disks mounted on a drive shaft and two driven torus disks mounted on a fixed shaft and separated by a thrust bearing. The unit is also equipped with intermediate rollers which are automatically rotated by

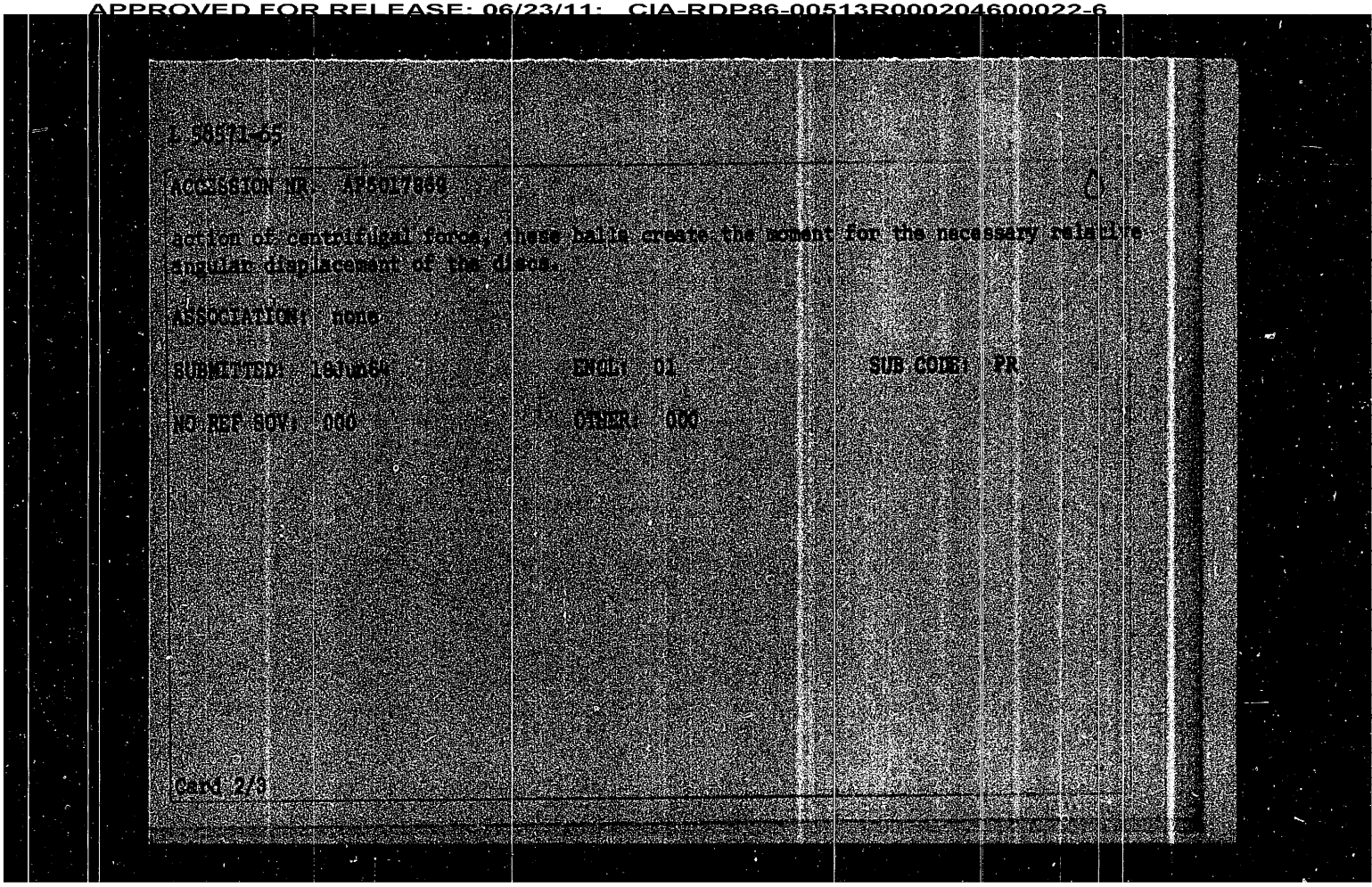
Card 1/3

L 58571-65
Accession Nr: AP5017839

ENCLOSURE: 01

Fig. 1--free running disc; 2--radial grooves; 3--bevelled lugs; 4--rigidly fastened disc; 5--edge of the groove; 6--bevelled edge of the lug; 7--ball

Card 3/3



L 58571-65

ACCESSION NR: AP5017868

Action of centrifugal force, these balls create the moment for the necessary relative angular displacement of the discs.

ASSOCIATION: none

SUBMITTED: 16Jun64 ENCL: 01 SUB CODE: PR

NO REF SOV: 000 OTHER: 000

Card 2/3

L [illegible]-65 EPA/EWT(m)/EWA(d)/EWP(f)/EWT(n)-2/EWP(v)/EPR/T-2/EWP(k)/EPA(bb)-2 [illegible] EM/WW

ACCESSION NR: AP50[illegible] UR/0286/65/000/011/0117/0117

621.438-546

AUTHOR: Belyayev, Yu. V.; Yakovlev, Yu. P.

TITLE: A low power turbine. Class 46, No. 171696

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 11, 1965, 117

TOPIC TAGS: turbine engine

ABSTRACT: This Author's Certificate introduces a low power turbine for driving auxiliary aircraft equipment. The device contains a wheel which consists of two discs with semivanes. One of the discs is rigidly fastened to a shaft while the other is mounted loosely on the hub of the rigidly fastened disc. The loose running disc is connected to the rigidly fastened disc by a relative angular displacement mechanism. The turbine is designed for improved operational reliability and small overall dimension. The relative angular displacement mechanism consists of radial grooves cut into the free running disc. Bevelled lugs on the rigidly fastened disc fit into these grooves with a certain clearance. Small balls are placed in the gap formed between the edge of the groove and the bevelled edge of the lugs. Under the

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R000204600022-6

BELYAYEV, Yu.V.

Effect of vibration-proof forging hammer foundations on the stroke efficiency and the foundation block loading. Kuz.-shtam. proizv. 4 no.1:30-34 Ja '62. (MIRA 17:3)

Modernization of Die-Forging Equipment SOV/5658

Modernization of Die-Forging Equipment SOV/5658

on Problems in the Modernization and Operation of Die-Forging Equipment, held in November 1958 in Leningrad. The Conference was called by Leningradskiy Sovet narodnogo khozyaystva, Sektsiya obrabotki metallov davleniyem Leningradskogo oblastnogo pravleniya NTO Mashprom (Leningrad Council of the National Economy, Section of Metal Pressworking at the Leningrad Oblast Board of the Scientific and Technical Society of the Machine Industry) and Leningradskiy mekhanicheskiy institut (Leningrad Mechanical Engineering Institute). Actual problems in the modernization, operation, and repair of die-forging equipment are described. Analyses are provided for problems involved in the mechanization and automation of die-forging and stamping operations. Also included are practical data to be used in the modernization of equipment. No personalities are mentioned. There are 59 references: 56 Soviet, 2 German, and 1 English.

TABLE OF CONTENTS:

BELYAYEV, Yu. V.

PHASE I BOOK EXPLOITATION SOV/5658

Ivanov, Aleksandr Petrovich, Candidate of Technical Sciences, and Viktor Dmitriyevich Lisitsyn, Candidate of Technical Sciences, eds.

Modernizatsiya kuznechno-shtampovochnogo oborudovaniya (Modernization of Die-Forging Equipment) Moscow, Mashgiz, 1961. 226 p. Errata slip inserted. 10,000 copies printed.

Reviewer: V. Ye. Nedorezov, Candidate of Technical Sciences; Ed. of Publishing House: T. L. Leykina; Tech. Ed.: A. A. Bardina; Managing Ed. for Literature on Machine-Building Technology (Leningrad Department, Mashgiz): Ye. P. Naumov, Engineer.

PURPOSE: This book is intended for foremen, machinists, designers, and process engineers concerned with the modernization and designing of die-forging equipment. It may also be used by students at schools of higher education.

COVERAGE: The book contains material presented at the Conference

Card 1/8

BELYAYEV, Yu.V.; SOKOLOV, A.A.

New methods of determining the velocity of hammer strokes.
Kuz.-shtam. proizv. 1 no.9:21-23 '59. (MIRA 12:12)
(Forging machinery--Testing)

BELYAYEV, Yu.V., inzhener.

Mathematical investigation of the efficiency of pneumatic drill strikes.
[Trudy] VNIIStroidormash no.12:37-47 '56. (MLRA 10:3)
(Rock drills)

123-1-1837

The Theory of Rotary Mechanisms of Rock Drills (Cont.)

The formulae received were used for mathematical analysis in designing the subject revolving mechanism; the contact of the piston with the drill steel is insured by an air cushion. A formula was derived for the determination of the angle at which the drill steel turns during one stroke, assuming that the drill ceases to rotate at the axial blow. The data on tests of the described motordriven rock drill with rotary mechanism is presented. It is noted that the number of the drill-steel revolutions obtained by calculation and in the test checked out, thereby confirming the recommended method for calculation. Three drawings are attached.

B.S.I.

Card 2/2

BELYAYEV, Yu.V.

123-1-1837

Translation from: Referativnyy Zhurnal, Mashinostroyeniye, 1957, Nr 1, p. 264 (USSR)

AUTHOR: Belyayev, Yu.V.

TITLE: The Theory of Rotary Mechanisms of Rock Drills (K teorii povorotnykh mekhanizmov buril'nykh molotkov)

PERIODICAL: In Sbornik: Issledovaniye stroit. mashin. Moscow, Mashgiz, 1956, pp. 31-36

ABSTRACT: Work on the method of designing and testing percussion rotary mechanisms for electric-and-Motor driven rock drills was carried out at the ВНИИСТРОЙДОРМАШ (All Union Scientific Research Institute of Building Road Machinery). In the subject mechanism the forward motion is converted into a rotary, at the time of the impact of two bodies of a determined shape. The general problem of the impact of two bodies, shaped as two telescoped cylinders with spiral fluted surfaces and revolving about their common axis, is solved. Assuming that the two colliding bodies are perfectly hard, formulae are derived for the determination of their forward and angular velocities after the impact.

Card 1/2

124-57-2-2448

On the Estimation of the Degree of Utilization (cont.)

η for the impact. This coefficient is determined as the ratio of the kinetic energy of the primary bar (the ram) prior to impact and the kinetic energy of the secondary bar (the operative tool) following the impact, assuming that the latter moves with the velocity of its center of inertia, i.e., disregarding any oscillatory energy. If the two cross-sectional areas are equal, $\eta_y = \ell_1 / \ell_2$ for $\ell_1 < \ell_2$, and $\eta = \ell_2 / \ell_1$, if $\ell_1 > \ell_2$, where ℓ_1 and ℓ_2 are the respective lengths of the primary and secondary bars; a more complicated relationship is established for the case when the two cross sections are of different magnitude. The formulas obtained were verified experimentally; good agreement with the calculated values was found for sufficiently long rams ($\ell_1 / d_1 > 2$, where d_1 is the diameter of the cross section of the ram); a substantial difference appeared for $\ell_1 / d_1 = 1$.

I. I. Blekhman

1. Pneumatic hammers--Performance 2. Machines--Performance
3. Mathematics

Card 2/2

BELYAYEV, Yu.V.

124-57-2-2448

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 2, p 133 (USSR)

AUTHOR: Belyayev, Yu. V.

TITLE: On the Estimation of the Degree of Utilization of the Impact Energy in Impact-type Machines (Ob otsenke stepeni ispol'zovaniya energii udara v udarnykh mashinakh)

PERIODICAL: V sb.: Issled. friktsionnykh par i udarnykh mashin. Moscow, Mashgiz, 1955, pp 35-50

ABSTRACT: Examination of machines employing an impact action, e. g., pneumatic hammers, in which the tool that operates directly upon the product material obtains its energy from an impact upon it of a specially designed body, namely, a ramming piston. The author analyzes various methods for the determination of the efficiency of the impact mechanism of such a machine; he concludes that none of the existing formulas appears adequately satisfactory. He solves the problem of the longitudinal impact of two elastic free bars having a uniform cross section, one of which is at rest until the impact, while the other moves at a constant velocity along its own axis, and he obtains formulas for the kinetic-energy transfer coefficient

Card 1/2

BELYAYEV, YU. V.

BELYAYEV, YU. V.: "Investigation of the impact process of pneumatic hammers". Moscow, 1955. Min Higher Education USSR. Moscow Order of Labor Red Banner Construction Engineering Inst imeni V. V. Kuybyshev. (Dissertation for the Degree of Candidate of Technical Sciences)

SO: Knizhnaya Letopis' No. 51, 10 December 1955

BELYAYEV, Yu.P.; MOISEYEV, Yu.G.; LITVI[illegible]ENKO, V.I.; BERDNIK, A.A.

Radiometric investigation of the resistance of a blast furnace hearth bottom. Met. i gornorud. prom. no.2:11-14 Mr-Ap '65. (MIRA 18:5)

YAKOVLEV, Yu.N., kand. tekhn. nauk; PANIOTOV, Yu.S.; ZHENNOVSKIY, V.S.; BELYAYEV, Yu.P.

Slag formation and smelting in 650 and 900-ton capacity open-hearth furnaces. Met. i gornorud. prom. no.6:24 N-D '64. (MIRA 18:3)

YAVOYSKIY, V.I.; BEKTURSUNOV, Sh.Sh.; BELYAYEV, Yu.P.; MOLOTKOV, V.A.; DUDKO, D.A.

Metal distribution by consumable electrodes in the volume of an ingot during additional electric slag feeding. Avtom. svar. 16 no.11:40-43 N '63. (MIRA 17:1)

1. Moskovskiy institut stali i splavov (for Yavoyskiy).
2. Karagandinskiy politekhnicheskiy institut (for Bektursunov).
3. Zhdanovskiy metallurgicheskiy zavod imeni Il'icha (for Belyayev, Molotkov). 4. Institut elektrosvarki imeni Ye.O. Patona AN UkrSSR (for Dudko).

YAVOYSKIY, V.I., prof., doktor tekhn.nauk; BEKTURSUNOV, Sh.Sh., inzh.; CHERNEGA, D.F., kand.tekhn.nauk; TYAGUN-BELOUS, G.S., kand.tekhn.nauk; DUDKO, D.A., kand.tekhn.nauk; Prinimali uchastiye: MOLOTKOV, V.A.; BELYAYEV, Yu.P.; YAKOBSHA, R.Ya.; AGAMALOVA, L.L.; CHEKALENKO, G.A.; BOCHAROV, V.A.; KISSEL', N.N.; POTANIN, Ye.M.; SYTOVA, N.M.

Electric slag heating and additional feed of large sheet billets made of 10G2SD steel. Stal' 22 no.7:611-615 Jl '62. (MIRA 15:7)

(Steel ingots) (Rolling (Metalwork))

BELYAYEV, Yuriy Nikolayevich, kand. ekon. nauk; LIVSHITS, Ya.L., red.; ATROSHCHENKO, L.Ye., tekhn. red.

[The Council for Mutual Economic Assistance and the "Common Market."] SEV i "Obshchii rynok." Moskva, Izd-vo "Znanie," 1964. 47 p. (Novoe v zhizni, nauke, tekhnike. VII Seriia: Mezhdunarodnaia, no.3) (MIRA 17:2)

BELYAYEV, Yu.N.; LEONAS, V.B.

Generation of intensive molecular beams. Vest. Mosk. un. Ser. 3:Fiz., astron. 18 no.5:34-42 S-O '63. (MIRA 16:10)

1. Kafedra molekulyarnoy fiziki Moskovskogo gosudarstvennogo universiteta.

ACC NR: AP6034751

method produced better agreement. The authors thank A. B. Kamnev for taking part in the research. This report was presented by Academician G. I. Petrov 22 April 1965. Orig. art. has: 1 figure, 1 formula, and 1 table.

SUB CODE: 20/ SUBM DATE: 14Apr65/ ORIG REF: 001/ OTH REF: 004

Card 2/2

ACC NR: AP6034751 SOURCE CODE: UR/0020/66/170/005/1039/1040

AUTHOR: Belyayev, Yu. N.; Leonas, V. B.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Short-range forces of intermolecular interaction of oxygen and nitrogen

SOURCE: AN SSSR. Doklady, v. 170, no. 5, 1966, 1039-1040

TOPIC TAGS: intermolecular force, oxygen, nitrogen, argon, molecular interaction, elastic scattering, scattering cross section, relaxation process

ABSTRACT: In view of recent interest in the study of elastic scattering of nitrogen and oxygen molecules in their own gas and by atoms of noble gases, the authors determine the parameters K and s of the intermolecular-interaction potential function $V(r) = K/r^s$ from the energy dependence of the total effective cross section of a beam of fast neutral molecules of nitrogen and oxygen (E = 0.6 - 4 kev) in oxygen, nitrogen, and argon. The principle of the method and the experimental setup are described elsewhere (DAN v. 162, 798, 1965). A table listing these parameters and a plot of the resultant potential curve for the $O_2 - O_2$ interaction are presented. The latter is compared with potential curves obtained by others. The curve obtained from data on the relaxation of the molecule vibrations in the gas agrees poorly with the present results, in view of deficiencies in the present theory of vibrational relaxation. On the other hand, comparison with refined calculations on the basis of a semi-empirical

Card 1/2 UDC: 539.196.2

L 44717-66

ACC NR: AP6031584

potentials describing the interaction of the investigated systems in the energy region ~1 kev. Singularities were observed in the energy dependence of the cross sections $Q(\theta_0)$ for the scattering of atoms with unclosed electron shells by molecules. Using the O-N_2 system as an example, an attempt is made to explain the observed scattering singularities and to estimate the probability of nonadiabatic electronic transition. It is decided that the observed singularities reflect sharp changes in the character of the interaction of atom-molecule distances. Such changes can be the consequence of the crossing of the levels of the electron energy for symmetrical configurations of three identical atoms. Orig. art. has: 1 figure and 1 table.

SUB CODE: 20/ SUBM DATE: 02Jun66/ ORIG REF: 004/ OTH REF: 001

Card 2/2

L 04737-66 EWT(1) IJP(c) JAJ

ACC NR: AP6031584 SOURCE CODE: UR/0386/66/004/004/0134/0138

AUTHOR: Belyayev, Yu. N.; Leonas, V. B.

ORG: Mechanics Research Institute at the Moscow State University (Nauchno-issledovatel'skiy institut mekhaniki pri MGU)

TITLE: Features of scattering of fast beams of H, N. and O atoms in molecular gases (N_2, O_2)

SOURCE: Zhurnal eksperimental'noy i teoreticheskoy fiziki. Pis'ma v redaktsiyu. Prilozheniye, v. 4, no. 4, 1966, 134-138

TOPIC TAGS: atom scattering, molecular interaction, scattering cross section, hydrogen, nitrogen, oxygen

ABSTRACT: The purpose of the investigation was to determine the interaction potential energy needed for a theoretical calculation of the elastic and inelastic processes accompanying atom-molecule collisions. This was done by scattering fast beams from gas targets, using the experimental setup and the measurement procedure described earlier by one of the authors (with A. B. Kamnev et al, PTE, no 2, 182, 1966). Measurements of the total scattering cross sections were made with the aid of beams with energies from 0.6 to 4 kev, using three different detector angular apertures θ_0. The authors measured the absolute values of the total cross sections for elastic scattering of H, N, and O atoms by O_2 and N_2 molecules as functions of the energy. From these data they obtained the parameters of the effective spherically-symmetrical

Card 1/2

SERGEYEV, V.P.; TARNOVSKIY, O.I.; MITROFANOVA, N.M.; SHMELEV, N.P.; SHABUNINA, V.I.; SKVORTSOVA, A.I.; VASIL'TSOV, V.D.; KRASNOGLAZOV, B.P.; BELYAYEV, Yu.N.; KURAKIN, V.A.; YUMIN, M.N.; SERGEYEV, V.P.; ZOTOVA, N.A.; MATVIYEVSKAYA, E.D.; STUPOV, A.D., otv. red.; LISOV, V.Ye., red. izd-va; NOVICHKOVA, N.D., tekhn. red.

[Economic cooperation and mutual aid in socialist countries] Ekonomicheskoe sotrudnichestvo i vzaimopomoshch' sotsialisticheskikh stran. Moskva, Izd-vo Akad. nauk SSSR, 1962. 272 p. (MIRA 16:2)

1. Akademiya nauk SSSR. Institut ekonomiki mirovoy sotsialisticheskoy sistemy.

(Communist countries--Foreign economic relations)
(Communist countries--Industries)

BELYAYEV, Yuriy Nikolayevich, kand. ekon. nauk; MIRONOV, S.Ya., red.; RAKITIN, I.I., tekhn. red.

[Following the equalization policy; on equalizing the level of economic development in socialist countries]Kurs - na vyravnivanie; o vyravnivanii urovnia razvitiia ekonomiki sotsialisticheskikh stran. Moskva, Izd-vo "Znanie," 1962. 47 p. (Novoe v zhizni, nauke, tekhnike. III Seriia: Ekonomika, no.20) (MIRA 15:11)

(Communist countries--Economic policy)
(Communist countries--Foreign economic relations)

BELYAYEV, Yu.N.[translator]; KOROLEV, P.G.[translator]; TIKHOMIROV, V.D.[translator]; PIMENOV, B.K., red.; MILITAREVA, Yu.E., red.; KHAR'KOVSKAYA, L.M., tekhn. red.

[National economic development of the Korean People's Democratic Republic after the liberation]Razvitie narodnogo khoziaistva Koreiskoi Narodno-Demokraticheskoi Respubliki posle osvobozhdeniia. Pod red. I s predisl. B.K.Pimenova. Moskva, Izd-vo inostr. lit-ry, 1962. 337 p. Abridged translation from the Korean.
(MIRA 15:12)

(Korea, North—Economic conditions)

BELYAYEV, Yu.N.; TRIGUBENKO, M.Ye.; KRASAVIN, M.V., red.; GERASIMOVA, Ye.S., tekhn.red.; PONOMAREVA, A.A., tekhn.red.

[Development of the economy and culture of the Korean People's Democratic Republic in 1946-1957; statistical collection] Razvitie narodnogo khoziaistva i kul'tury Koreiskoi Narodno-Demokraticheskoi Respubliki v 1946-1957 gg.; statisticheskii sbornik. Moskva, Gosplanizdat, 1959. 90 p. (MIRA 13:1)
(Korea--Statistics)

ACC NR: AP6033958

potential energy ($V(r) = K/r^n$) of intermolecular interaction (see Table 2). Orig. art. has: 2 tables. [WA-68]

SUB CODE: 20 / SUBM DATE: 07Jun65/ ORIG REF: 002/ OTH REF: 002/

Card 3/3

ACC NR: AP6033958

Table 1.

T° K	Nitrogen		Oxygen		D_{12}, cm^2/sec
	$\eta \cdot 10^4$, g/cm sec	D, cm^2/sec	$\eta \cdot 10^4$, g/cm sec	D, cm^2/sec	
2000	6,83	9,89	6,9	10,16	5,5
3000	9,33	13,51	9,4	13,84	11,34
4000	11,68	16,92	11,9	17,52	19,07
5000	13,88	20,10	14,6	21,50	28,50
6000	16,03	23,20	16,95	24,95	39,40
7500	19,0	27,50	19,93	29,32	58,90
10000	23,7	34,30	25,2	37,10	98,50
12500	28,2	40,80	30,5	44,90	144,6
15000	32,5	47,10	35,1	51,70	203,7

Table 2. Parameters of intermolecular potential energy of interaction of oxygen and nitrogen $V(r) = K/r^n$ ev

System	K	n	r, A
N_2—N_2	550	7.4	2.34—3.05
N_2—O_2	330	6.8	2.32—3.05
O_2—O_2	240	6.3	2.32—3.15

Card 2/3

ACC NR: AP6033958 SOURCE CODE: UR/0294/66/004/005/0732/0733

AUTHOR: Belyayev, Yu. N.; Leonas, V. B.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Kinetic coefficients of molecular oxygen and nitrogen at high temperatures

SOURCE: Teplofizika vysokikh temperatur, v. 4, no. 5, 1966, 732-733

TOPIC TAGS: high temperature interaction, molecular oxygen, molecular nitrogen, diffusion coefficient, viscosity coefficient, intermolecular force, molecular interaction, oxygen, nitrogen

ABSTRACT: Viscosity, self-diffusion (at constant density $p = 10^{-4}$ g/cm^2), and counterdiffssion (at 1 atm) coefficients have been calculated for molecular oxygen and nitrogen at 2000—15000K (see Table 1). The calculation was performed using previously derived formulas and the parameters of the effective spherically symmetrical

Card 1/3 UDC: 539.196.3:546.17+546.21

L 23490-66

ACC NR: AP6007087

2

parameters of potentials that are not spherically symmetric from scattering data are of doubtful value. The N_2- N_2, N_2- O_2, and O_2- O_2 potentials were calculated from the N_2- Ar and O_2- Ar scattering data by the indirect procedure of I.Amdur, E.A.Mason, and J.E.Jordan (J.Chem. Phys., 27, 577, 1957), and the results were found to be in good agreement with the potentials derived directly from the N_2- N_2, N_2- O_2 and O_2- O_2 scattering data. Interaction potentials calculated by the semi-empirical method of J.T.Vanderslice et al. (J.Chem. Phys. 30, 129, 1959; 32, 515, 1960) were not in agreement with those derived directly from the scattering data, but satisfactory agreement was obtained when the improved technique of W.E.Meador (NASA Tech. Rep., R = 68, 1960) was employed. Interaction potentials derived with the aid of the theory of vibrational relaxation of gas molecules by N.A.Generalov and S.A.Losev (DAN SSSR, 148, 552, 1963; Izv. AN SSSR, ser. fiz., 27, 1110, 1963) were not in agreement with those obtained from the scattering data; this discrepancy is ascribed to inadequacy of the relaxation theory. The authors thank A.B.Kamnev and A.V.Sermyagin for participating in the work. Orig. art. has: 1 formula, 3 figures, and 1 table.

SUB CODE: 20,07 SUBM DATE: 07Jun65/ ORIG REF: 002/ OTH REF: 006

Card 2/2 FW

L 23490-66 EWT(l)/EWT(m)/EWP(t) IJP(c) JD

ACC NR: AP6007087 UR/0057/66/036/002/0353/0357

AUTHOR: Belyayev, Yu.N.; Leonas, V.B.

ORG: Moscow State University im. M.V.Lomonosov (Moskovskiy gosudarstvennyy universitet)

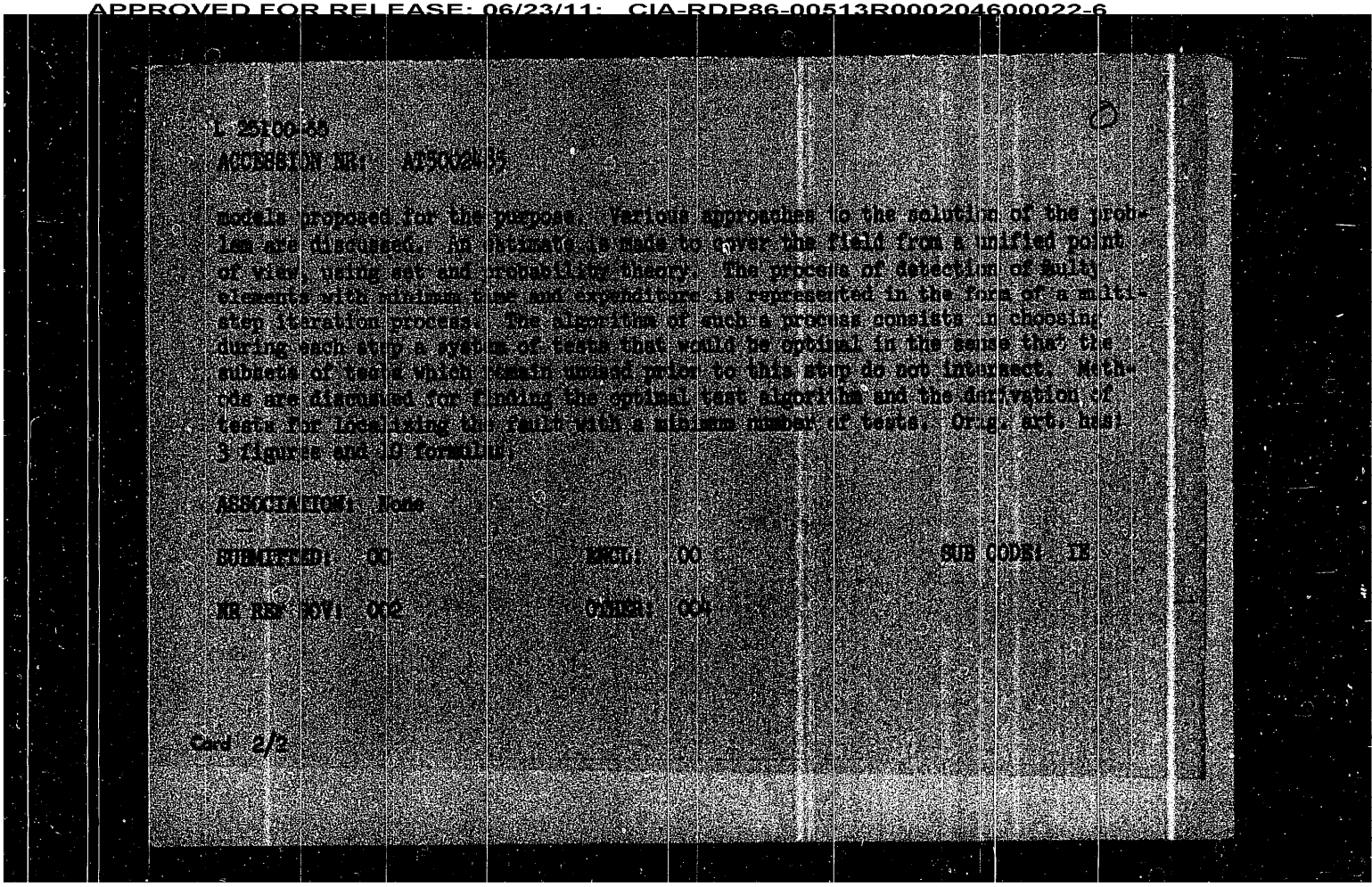
TITLE: Intermolecular force between oxygen and nitrogen in the repulsive region

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 2, 1966, 353-357

TOPIC TAGS: nitrogen, oxygen, argon, molecular interaction, elastic scattering, intermolecular force, gas relaxation, vibration relaxation

ABSTRACT: Experimental data on the total cross sections for elastic scattering of 0.6 to 4 keV oxygen and nitrogen molecules by nitrogen and oxygen molecules and argon atoms were employed to calculate the N_2- N_2, N_2- Ar, N_2- O_2, O_2- O_2, and O_2- Ar interaction potentials. The experimental techniques (and presumably the data themselves) are discussed elsewhere by A.B.Kamnev and V.B.Leonas (DAN SSSR, 162, 798, 1965). The interaction potentials were assumed to have the form K/r^n, where r is the distance between the interacting molecules, and the parameters K and n for the different potentials were calculated from the energy dependences of the corresponding cross sections. The N_2- O_2 potential was found to be equal, within the experimental error, to the geometric mean of the N_2- N_2 and O_2- O_2 potentials. The fact that the true potentials are not spherically symmetric is discussed, and it is concluded that attempts to derive the

Card 1/2



L 25100-65
ACCESSION NR: AM5002615

models proposed for the purpose. Various approaches to the solution of the problem are discussed. An attempt is made to cover the field from a unified point of view, using set and probability theory. The process of detection of faulty elements with minimum time and expenditure is represented in the form of a multistep iteration process. The algorithm of such a process consists in choosing during each step a system of tests that would be optimal in the sense that the subsets of tests which remain unused prior to this step do not intersect. Methods are discussed for finding the optimal test algorithm and the derivation of tests for localizing the fault with a minimum number of tests. Orig. art. has: 3 figures and 9 formulas.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: IE

NR REF SOV: 002 OTHER: 004

Card 2/2

L 21102-65 EWT(d)/EWT(l)/EWP(e)/EWP(v)/T/EEC(b)-2/EWP(k)/EWP(h)/EWP(l)/EWA(h)
Pn-4/Pf-4/Pq-4/Pi-4/Pg-4/Peb/Pl-4

ACCESSION NR: AT5002405 S/2720/64/002/000/0159/0178

43

AUTHOR: Belyayev, Yu. K.; Ushakov, I. A.

TITLE: Mathematical models for the problems of detecting and localization of faults

B+1

SOURCE: Kibernetiku - na sluzhbu kommunizmu, v. 2, 1964. Teoriya nadezhnosti i teoriya massovogo obsluzhivaniya (Theory of reliability and theory of mass service), 159-178

25

TOPIC TAGS: fault detection, mathematical modeling, fault localization, quality control, preventive maintenance

ABSTRACT: This is a review article devoted to the organization of quality control of the operating condition of a complicated system prior to its operation, or to a periodic check on the system during the course of its operation; it deals also with the development of methods for finding faulty elements in a complicated system in the case when the system goes out of order. The existing mathematical models for the solution of such problems are critically reviewed and some new

Card 1/2

L 03024-67

ACC NR: AP6027727

$$\inf_{\theta\in\Theta} P_\theta\{\underline{f}(x) \leqslant f(x,\theta) \leqslant \bar{f}(x)\} \geqslant \gamma.$$

The problem is solved on the basis of a system of γ-confidence sets

$$\{H_x\}\ (\gamma\text{-c.}),\ H_x \subseteq \Theta,\ x \in X,\ \inf_{\theta\in\Theta} P_\theta\{\theta \in H_x\} \geqslant \gamma$$

Presented by Academician A. N. Kolmogorov on 18 June 1965. Orig. art. has: 19 formulas.

SUB CODE: 12/ SUBM DATE: 21Nov65/ ORIG REF: 003/ OTH REF: 001

Card 2/2

L 03024-67 EWT(d)/T IJP(c)

ACC NR: AP6027727 SOURCE CODE: UR/0020/66/169/004/0755/0758

AUTHOR: Belyayev, Yu. K.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Confidence intervals for functions of many unknown parameters

SOURCE: AN SSSR. Doklady, v. 169, no. 4, 1966, 755-758

TOPIC TAGS: confidence interval, reliability, statistic analysis

ABSTRACT: An algorithm solution is given for the problem of constructing the upper confidence limit for a concave function

$$f(\lambda_1, \ldots, \lambda_m) = \sum_{i=1}^{m} f_i(\lambda_i).$$

The input data are values of d_i, $i = 1, \ldots, m$, mutually independent random quantities having a Poisson distribution with parameters λ_i. The general problem is formulated as follows. Given a space X of outcomes of trials and a space of parameters θ which define the family of probability distributions P_θ and an σ-algebra of $\mathfrak{B}_X$ subsets of X, and given on the product $X \times \Theta$ a function $f(x,\theta)$ $\mathfrak{B}_X$-measurable on x for each $\theta \in \Theta$ it is required to construct a γ-confidence interval for $f(x,\theta)$, that is to find $\mathfrak{B}_X$-measurable functions $\underline{f}(x)$ and $\overline{f}(x)$ such that

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Gnedenko, Boris Vladimirovich; Belyayev, YUriy Konstantinovich; Solov'yev, Aleksandr Dmitriyevich

25

Mathematical methods in the theory of reliability; basic characteristics of reliability and their statistical analysis (Matematicheskiye metody v teorii nadezhnosti; osnovnyye kharakteristiki nadezhnosti i ikh statisticheskiy analiz) Moscow, Izd-vo "Nauka", 65. 0524 p. illus., biblio., index. Errata slip inserted. 27,000 copies printed.

Series note: Fiziko-matematicheskaya biblioteka inzhenera

TOPIC TAGS: mathematic method, statistic analysis, probability, reliability theory, quality control

PURPOSE AND COVERAGE: This book presents basic concepts of the mathematical methods in the theory of reliability and gives various plans for estimating characteristics of reliability from the results of tests. Also, methods for testing the hypothesis, the theory of reservation without reduction and with reduction, and methods of acceptance control are presented. The book contains supplementary tables. In the first chapter is an introduction to the theory of probability, mathematical statistics and Laplace transform. The book is recommended for mathematicians, engineers and students dealing with problems in the theory of probability. The section of the book concerning quality control of production is useful to those working in the field of technical control. 14

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GNEDENKO, Boris Vladimirovich; BELYAYEV, Yuriy Konstantinovich; SOLOV'YEV, Aleksandr Dmitriyevich; KIZUN'KO, V.G., red.

[Mathematical methods in reliability theory; fundamental characteristics of reliability and their statistical analysis] Matematicheskie metody v teorii nadezhnosti; osnovnye kharakteristiki nadezhnosti i ikh statisticheskii analiz. Moskva, Nauka, 1965. 524 p. (MIRA 18:10)

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THEOREM 3. If in the single-channel system defined above of massive service with refusals the following condition is satisfied: $\frac{F_{2\gamma}}{F_{1\gamma}} \to 0, \quad \gamma \to 0,$

or the stronger condition $\frac{H_\gamma}{F_{1\gamma}} \to 1, \quad \gamma \to 0,$

is satisfied, then the flow of refusals $\eta_\gamma\left(\frac{\Delta}{\lambda F_{1\gamma}}\right) = L_\gamma^{(s)}\left[\eta\left(\frac{\Delta}{\lambda F_{1\gamma}}\right)\right] \Rightarrow \eta_0(\Delta), \quad \gamma \to 0,$

where $\eta_0(\Delta)$ is the Poisson flow with parameter equal to one. When the stronger condition is satisfied, we also have $M\eta_\gamma\left(\frac{\Delta}{\lambda F_{1\gamma}}\right) \to |\Delta|.$

Theorem 4 is an extension of Theorem 3 to multi-service systems. Orig. art. has: 59 formulas.

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where $\eta_0(\Delta)$ is a generalized Poisson flow with distribution function of the parameter $G(\lambda)$. Let $F(x)$ be the distribution function of the duration between service calls.

$$\int_0^\infty x dF(x) = 1/\lambda,\ 0 < \lambda < \infty,\ F(+0) = 0.$$

Assume that $\{\tau_i\}$ are mutually independent uniformly distributed random variables with distribution function $G_\gamma(x) = G(x/\gamma)$, where $G(x)$ is the distribution function of a nonnegative random variable. $H(t)$ denotes the mean number of outputs in the interval $(0,t)$ under the condition that at the initial moment there was a call at the input flow.

$$F_{1\gamma} = \int_0^\infty F(x)\, dG_\gamma(x) = \int_0^\infty F(\gamma x)\, G(x),$$

$$F_1(x) = \int_0^t F(t-x)\, dF(x),$$

$$F_{1\gamma} = \int_0^\infty F_1(x)\, dG_\gamma(x) = \int_0^\infty F_1(\gamma x)\, dG(x),$$

$$H_\gamma = \int_0^\infty H(x)\, dG_\gamma(x) = \int_0^\infty H(\gamma x)\, dG(x).$$

If as $\gamma \to 0$ $P\{\eta_\gamma(\Delta)>0\}\to 0$ for any $\Delta, |\Delta|>0$, then the output flow is naturally called rearing.

THEOREM 1. If the input flow $\eta(\Delta)$ is such that for some $\lambda>0$ uniformly in all intervals of finite length Δ

$$\lim_{|\Delta|\to\infty} P\left\{\left|\frac{\eta(\Delta)}{|\Delta|}-\lambda\right|>\varepsilon\right\}=0$$

for any $\varepsilon>0$, then for $\gamma\to 0$

$$\eta_\gamma\left(\frac{\Delta}{\gamma}\right)=L_\gamma^{(1)}\left[\eta\left(\frac{\Delta}{\gamma}\right)\right]\Rightarrow\eta_0(\Delta),$$

where $\eta_0(\Delta)$ is a Poisson flow with intensity λ. The random flow $\eta(\Delta)$ is called generalized Poisson flow with distribution function of the parameter $G(\lambda)$ if there exists a random variable $\xi>0$ with distribution function $G(\lambda)$ given on the same probability field, so that the flow $\eta(\Delta)$ under the condition $\xi=\lambda$ is Poisson with parameter λ for almost all values of λ.

THEOREM 2. If uniformly in all intervals Δ of finite length for any $\varepsilon>0$ and a random variable $\xi\geq 0$, $P\{\xi\leq\lambda\}=G(\lambda)$,

$$\lim_{|\Delta|\to\infty} P\left\{\left|\frac{\eta(\Delta)}{|\Delta|}-\xi\right|>\varepsilon\right\}=0,$$

then $\eta_\gamma\left(\frac{\Delta}{\gamma}\right)=L_\gamma^{(1)}\left(\frac{\Delta}{\gamma}\right)\Rightarrow\eta_0(\Delta)$.

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59

AUTHOR: Belyayev, Yu. K. (Moscow)

TITLE: Limit theorems for rearing flows

SOURCE: Teoriya veroyatnostey i yeye primeneniya, v. 8, no. 2, 1963, 175-184

TOPIC TAGS: Poisson process, service system , single-channel system , random flow

ABSTRACT: For a large class of random flows it is proved that after some rearing operations the resulting flows tend to a Poisson flow. Theorem 1 is a generalization of a known result obtained by A. Renyi. The results of theorems 3 and 4 are connected with the investigation of output flows for some service systems, as shown below. By random flow $\eta(\Delta)$ we mean a random additive function of the interval Δ taking on integer values 0,1,2,... . If x_i are mutually independent random variables, then the corresponding flow is called flow with bounded contagion. We say that the flow $\eta'_\gamma(\Delta)$ converges in probability to the flow $\eta(\Delta)$ as $\gamma \to 0$, if for any choice of interval $\Delta_1,\ldots,\Delta_m$ and whole numbers $k_1,\ldots,k_m$

$$\lim_{\gamma \to 0} P\{\eta'_\gamma(\Delta_i) = k_i,\ i = \overline{1,m}\} = P\{\eta(\Delta_i) = k_i,\ i = \overline{1,m}\}.$$

Card 1/4

BELYAYEV, Yu.K.; MAKSIMOV, V.M. (Moscow)

Analytical properties of a generating function for the number of renewals. Teor. veroiat. i ee prim. 8 no.1:108-112 '63. (MIRA 16:3)
(Probabilities)

Transactions of the 6th Conf. on Probability Theory and Mathematical Statistics and of the Symposium on Distributions in Infinite-Dimensional Spaces held in Vil'nyus, 5-10 Sep '60. Vil'nyus Gospolitizdat Lit SSR, 1962. 493 p. 2500 copies printed

An example of stochastic . . .

random process with mixing attaining only the values + 1 and - 1. Here it holds

$$\int_0^p \xi(t)\,dt = \xi(p) - \xi(0) \quad \text{and} \quad |\xi(p) - \xi(0)| < 2.$$

From this it follows in particular that the dispersion of the integral $\xi(p)$ is bounded and $D[\xi(p) - \xi(0)] \to 2 D\xi(0)$ for $p \to \infty$.

There are 3 Soviet-bloc references.

SUBMITTED: June 21, 1960

Card 3/3

An example of stochastic . . .

time $(t, t+\Delta t)$, and to jump into the point $(x, 2)$ with probability $\Delta t + O(\Delta t)$. If, however, $\eta(t) = (x, 2)$ at the moment t, then let $\eta(t+\Delta t) = (x-\Delta t, 2)$ with probability $1 - \Delta t + O(\Delta t)$ and let a jump into the point $(x, 1)$ take place with probability $\Delta t + O(\Delta t)$. In moving over the interval I_1 (I_2) there takes place a transition into the point $(+1, 2)((-1, 1))$ under reaching the upper (lower) interval limit. Under these assumptions there exists an ergodic distribution, see B. A. Sevast'yanov (Ref. 3: Ergodicheskaya teorema dlya markovskikh protsessov i yeye prilozheniye k telefonnym sistemam s otkazami [Ergodic theorem for Markov processes and its application to telephone systems with cancellation], Teoriya veroyat. i yeye primen. II, 1 (1957), 106-116). If this ergodic distribution is taken as initial distribution for $\eta(t)$, then one obtains a stationary Markov process with mixing.

The author considers the process $\xi(t) = x$, if $\eta(t) = (x, i)$. As function of $\eta(t)$, $\xi(t)$ is a stationary process with mixing, but not a Markov one. $\dot{\xi}(t) = d\xi/dt$ ($\xi(t)$ is assumed to be separable) exists in the sense of the convergence in the quadratic mean; $\xi(t)$ is a stationary

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AUTHOR: Belyayev, Yu. K.

TITLE: An example of stochastic process with mixing

PERIODICAL: Teoriya veroyatnostey i yeye primeneniye, v. 6, no. 1, 1961, 101-103

TEXT: The author constructs a stationary random process $\xi(t)$, $-\infty < t < +\infty$ with mixing which attains two values, where the dispersion of the integral

$$\int_0^p \xi(t)\,dt$$

is bounded for $p \to \infty$.

The author considers a Markov process, the phase space of which consists of $I_1 = [-1, +1)$ and $I_2 = (-1, +1]$. Let $\eta(t) = (x,i)$, if at the moment t the process is in the point $x \in I_i$ $(i = 1,2)$. If at the moment t the process was in $(x,1)$, then it is assumed to pass over into the state $(x + \Delta t, 1)$ with probability $1 - \Delta t + O(\Delta t)$ in the

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BELYAYEV, Yu.K. (Moscow)

Local properties of sample functions of stationary Gaussian processes. Teor. veroait. i ee prim. 5 no.1:128-131 '60.
(MIRA 13:10)

(Probabilities)

Analytical Random Processes

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The theorem 6 is devoted to processes which can be developed into a Taylor series.
The author thanks V.Ya.Kozlov, and A.N.Kolmogorov.
There are 8 references, 5 of which are Soviet, 1 French, 1 American, and 1 Swedish.

SUBMITTED: June 2, 1959

Card 3/3

Theorem 4: If the covariance function of a stationary process is an entire function of the exponential type, where the corresponding exponent is $\leq\sigma$, then almost all sample functions are entire functions of the exponential type, where the exponents are $\leq\sigma$.

Theorem 5: Let $\xi(t)$, $-\infty<t<\infty$ be a process with a bounded spectrum the covariance function of which is

$$(6) \qquad B(\tau) = \int_{-W}^{W} e^{i\tau\lambda}\, dF(\lambda) .$$

Then for almost all sample functions there holds the formula

$$(7) \qquad \xi(t,\omega) = \sum_{k=-\infty}^{\infty} \xi\left(\frac{k\pi}{w},\omega\right) \frac{\sin w\left(t-\frac{k\pi}{w}\right)}{w\left(t-\frac{k\pi}{w}\right)} ,$$

where $w>W$ is arbitrarily fixed.

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16(1),16(2)
AUTHOR: Belyayev,Yu.K.

TITLE: Analytical Random Processes

PERIODICAL: Teoriya veroyatnostey i yeye primeneniya, 1959, Vol 4, Nr 4, pp 437-444 (USSR)

ABSTRACT: The random process $\xi(t)$ is called analytical in a region D if almost all of its sample functions are analytical and have an analytical continuation in the region D.
Theorem 1: If the covariance function $B(t,s) = M\xi(t)\xi(s)$ is analytic in the neighborhood of (t_o,t_o), then the random process is analytic in the neighborhood of t_o.
Theorem 2: For Gaussian processes the condition of theorem 1 is necessary and sufficient.
Theorem 3: In order that the covariance function of a stationary process $B(\tau) = \int_{-\infty}^{\infty} e^{i\tau\lambda} dF(\lambda)$ is analytic for $|\tau| \leq r$ it is necessary and sufficient that $\int_{-\infty}^{\infty} e^{r\lambda} dF(\lambda) < \infty$.

Card 1/3

BELYAYEV, Yu. K., Cand Phys-Math Sci (diss) -- "Local properties of selective functions of stationary Gaussian processes". Moscow, 1959. 5 pp (Acad Sci USSR, Math Inst im V. A. Steklov), 160 copies (KL, No 9, 1960, 121)

SOV/52-3-3-6/8

On the Unboundedness of the Sample Functions of Gaussian Processes

$\sum b_k < \infty$, then the respective Gaussian process is bounded with probability 1, but if $\sum b_k = \infty$, and λ_k is not included in the rational relationship, then the Gaussian process is unbounded with the probability 1. There is 1 Soviet reference.

SUBMITTED: January 9, 1958.

Card 3/3

On the Unboundedness of the Sample Functions of Gaussian Processes

then such t can be found for $\varepsilon > 0$ for any natural N that:

$$|R(nt)| < \varepsilon \quad \text{for} \quad n = 1, \ldots, N$$

(Lemma 2). If $\{x_n\}$ and $\{y_n\}$ are two independent sequences of random numbers with stationary distribution and one of them is not limited by the probability 1, then the sequence $\{x_n + y_n\}$ is also not limited by the probability 1 (Lemma 3). Therefore it can be stated that a stationary Gaussian process with the probability 1 of containing a continuous spectral function is unbounded (Theorem 1). Or, if a spectral function of the stationary Gaussian process has continuous components, then the process is unbounded with the probability 1 (Theorem 2). In the case of the stationary Gaussian processes with discrete spectral functions, both the boundedness and unboundedness may occur with the probability 1. If the jumps of spectral functions

$$b_k^2 = F(\lambda_k + 0) - F(\lambda_k) \quad \text{and}$$

SOV/52-3-3-6/8

AUTHOR: Belyayev, Yu. K.

TITLE: On the Unboundedness of the Sample Functions of Gaussian Processes (O neogranichennosti vyborochnykh funktsiy Gaussovskikh protsessov)

PERIODICAL: Teoriya veroyatnostey i yeye primeneniya, 1958, Vol 3, Nr 3, pp 351-354 (USSR)

ABSTRACT: The spectral functions of the stationary Gaussian processes are characterised by their continuous components. The spectral function $F(\lambda)$ of such a process is a non-decreasing function which can be defined as a sum (1), where $F_1(\lambda)$ - function of jumps, $F_2(\lambda)$ - absolutely continuous function. For the processes where $F_2(\lambda) + F_3(\lambda) \not\equiv 0$, i.e. where the spectral functions contain the continuous components, almost all the sample functions are unbounded. An ordinary process $\{x(t), -\infty < t < +\infty\}$ is called unbounded with the probability 1 if Eq.(2) is satisfied for $A > 0$. Then, for the finite population $T_n(t_{n1}, \ldots, t_{nn})$, the expression (3) can be found (Lemma 1). Also if:

$$\frac{1}{T}\int_0^T |R(t)|^2 \, dt \to 0 \quad (T \to \infty) \ ,$$

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